INVESTIGATION OF NEUROENDOCRINE AND METABOLIC EFFECTS OF CENTRALLY ADMINISTERED URIDINE AND URIDINE NUCLEOTIDES

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- ✓ Uridine
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- ✓ UTP
- ✓ Metabolism
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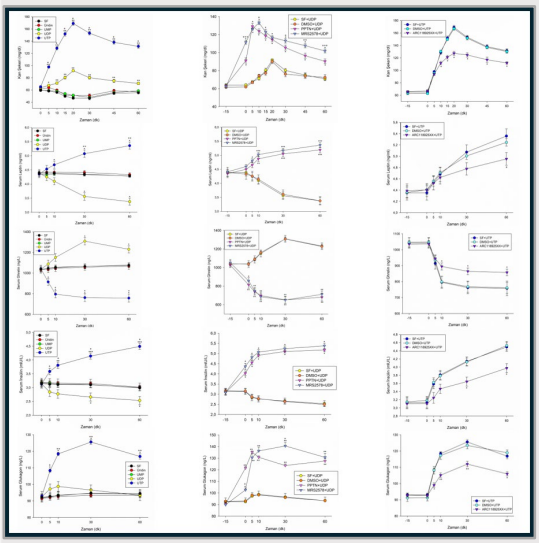

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THESIS ABSTRACT

The aim of this study was to investigate the effects of uridine and its nucleotides—UMP, UDP, and UTP—on the metabolic and neuroendocrine systems via the central nervous system, to explore the potential role of P2Y receptors in these effects, and to evaluate the involvement of hypothalamic nuclei in these processes.
According to the results, uridine and UMP did not induce significant changes in fasting blood glucose levels or in the levels of leptin, ghrelin, insulin, and glucagon. However, UDP was found to increase fasting blood glucose and glucagon levels while decreasing leptin and insulin levels. Applications of PPTN hydrochloride and MRS2578 increased fasting blood glucose, leptin, insulin, and glucagon levels, while decreasing ghrelin levels. Similarly, UTP administration elevated fasting blood glucose, leptin, insulin, and glucagon levels, and reduced ghrelin levels. These effects of UTP were partially inhibited by ARC-118925XX.

APPLICATION AREAS OF THE THESIS RESULTS

In the present thesis, various neuroendocrine and metabolic effects of centrally administered UDP and UTP have been demonstrated. The orexigenic effects of centrally administered UDP align with the findings of a limited number of studies in the literature. Notably, this thesis is the first to demonstrate that centrally administered UTP may exert anorexigenic effects.
These findings could contribute to a better understanding of the mechanisms underlying prevalent metabolic disorders such as diabetes and obesity. Additionally, they may provide new insights into the potential therapeutic applications of pyrimidine compounds or their antagonists in the treatment of these diseases.

ACADEMIC ACTIVITIES

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